

**PLAN
FOR
THE
FUTURE**

**THE NOVA SCOTIA MUNICIPAL BUREAU
AND
THE DEPARTMENT OF MUNICIPAL AFFAIRS**

DARTMOUTH

FOREWORD

The plan for Dartmouth was undertaken by the Nova Scotia Municipal Bureau at the request of the Dartmouth Town Council, and with encouragement and financial assistance from the Department of Municipal Affairs for Nova Scotia. The request gave to the Municipal Bureau a welcome opportunity for embarking on a project of town planning which it was thought could be used as a model for other municipal units in the province. Dartmouth, for a number of reasons, is very suitable to serve as an object lesson: it is typical of Nova Scotian communities with between 10,000 and 20,000 inhabitants; it is conveniently situated; it has a balanced economy, no one industry having a predominating influence. The location of the town opposite Halifax and the large waterfront present interesting transportation problems.

To devise a plan for Dartmouth seemed further desirable in view of the intensive planning activities which are being carried out in Halifax at present on the upper side of the harbour. The plans evolved in the two communities will lay the groundwork for a master plan for the whole metropolitan area of Halifax, a project which is being discussed between

the municipal authorities concerned.

The plan for Dartmouth has strict limitations. The work was done largely as a spare-time effort by a young architect, D. P. Reay, while serving in the R.C.A.F., and by Mrs. Reay, also a graduate in architecture. The aims of the report have been restricted, and it is important to state them at the outset. It is not intended to be both a fully documented survey and thoroughly thought out series of recommendations for the future development of the town of Dartmouth; neither the time nor the facilities were available for that. It is intended to be merely a general plan reconnaissance, illustrating in simple terms the planning approach to the problem of controlling the growth and change of small towns in the public interest, using the town of Dartmouth as a convenient example. It is hoped that this short approach will define the problems and objectives of Dartmouth, analyse all the important facts, and propose tentative solutions which will prove useful to those responsible for the direction of the town in the future.

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INTRODUCTION

Before anything can be controlled, in fact, before the decision is reached whether a particular thing can or should be controlled, it has to be thoroughly understood, and consequently the first task any town planning group must set itself is to collect all the essential information regarding its town, and arrange it in a form in which it can be readily grasped and understood. This procedure is usually referred to as the Survey, and as a town is a continually changing and growing thing, the Survey should be a more or less permanent institution recording changes as they occur, if it is to present an accurate picture of the town at any particular time. This survey enables us to compare the town with generally accepted standards, and to decide how well it is performing the functions which are expected of it; we can also compare the survey picture with what the town might become, within reasonable bounds of practicability, should its growth and change be planned and controlled in the public interest instead of being left to chance; and we can diagnose social and mechanical faults in the town's structure, observe long term trends which may be making large sections of it obsolete, and make reasonable forecasts as to future economic conditions which

will enable the development of the town to be designed effectively for the benefit of everybody. It is because this procedure has, in those cases in which it has been carried out, helped to produce a better environment than that to which we have all too often become inured, that the ultimate practicability of the planning approach is being assumed, and this report written.

There is no one set method of collecting and grouping the relevant facts about a town and its surrounding region, and arrangements have to be made as common sense dictates and modified to suit each individual case. Sometimes a town is analysed on the basis of its four primary functions, its living facilities, its recreational and educational facilities, its working arrangements, and its transportation and utility systems. Or it can be described as an historical growth, a series of events having definite causes and following a recognizable pattern. Or it can be described in economic terms, or in social or religious terms in some cases. But however the material is organized, there are certain groups of facts which we must know if we are to get a coherent and accurate picture of what the town is like and why it works. We should know:-

- (a) Its history. The reasons for it starting in the first place, the manner of its subsequent development and the factors influencing this development.
- (b) The facts about its geographical location. The local climate, the geology of its site and the surrounding country, local types of vegetation and soil conditions.

- (c) Its past and present economic picture. The amount of goods and services available in the town and its region, the way in which they are produced and distributed, and, bearing in mind regional, national and international economic trends, the possibilities of their increasing or decreasing.
- (d) All the relevant facts concerning the people of the town, their numbers, rate of increase, ages, family sizes, and income groupings; their trades and skills, their religious and cultural tendencies; the possibilities of their composition changing as a result of economic trends.
- (e) The picture of individual and community wellbeing, covering the physical condition, equipment, and layout of the people's homes and work places; educational, recreational, and cultural facilities; the condition of the general amenities of the town; the state of people's health, public safety and the incidence of crime, delinquency and traffic accidents; an analysis of existing welfare services and medical facilities. From these facts, and the deficiencies which they may show up, and in the light of the town's possible future economic status, a minimum standard goal for community wellbeing can be set up and a definite social plan evolved.
- (f) The ground plan of the community. The preparation of a physical base plan is almost the first essential for the presentation of the facts about the town in an intelligible form, and it has the advantage of frequently disclosing relationships between bodies of facts which had been hitherto unsuspected. The most important plan is the land use map of the town and its adjacent region. Functional and mechanical aspects of the town can then be presented on successive maps showing utilities, traffic volumes, the pattern of land value and land ownership, population densities, commodity movements, and much of the information collected under (b), (d) and (e) can be plotted and its significance read at a glance.

With this body of information we are in a position to diagnose mechanical and functional faults in the physical and social structure of the town which impede the achievement of a

communal standard of wellbeing generally accepted as reasonable under present economic conditions; we can further propose a series of changes which will both control the town's future growth, raise its environmental standard and further its economic development. "The application of informed foresight to the solution of the town's developmental problems"¹ is a very satisfactory definition of this process, which we will apply in a simplified manner to the town of Dartmouth.

We will first of all present the major facts about the town and its people and draw attention to some of the faults such a survey throws into relief. We will indicate the trends which will influence the development of the town in the future; and we will then put forward a general plan which takes into account and uses all this information, and which will be flexible enough to take care of a future of which all the details cannot be foreseen.

The survey information outlined below may strike the reader as sketchy, but a great deal of material which has bearing on the plan, particularly economic and geological data, is not available at the time of writing. To collect and tabulate all this material would require a considerable amount of time and energy. Such detailed knowledge is necessary to develop a specific set of plans from a general plan such as has been offered here, and it is suggested that the collection of such knowledge form the immediate preliminary to planning activity in Dartmouth. It is equally

^{1/} Lawrence Orton, New York City Plan Commission.

true, however, that with such facts as have been available, all the essential points can be covered, and these essential points are all that are needed to produce a general plan.

SURVEY

(a) Historical

In 1749, when the first little group of colonists sailed into Halifax harbour, and decided to settle on the western shore in what is now the city of Halifax, the eastern shore was the home of Micmac Indians. The second group of newcomers, which arrived the following year, decided to settle on the other side of the harbour, and the town of Dartmouth was founded.

Early settlements were beset by many difficulties, not the least of which was the understandable resentment of the local Indians, who waged unceasing war upon the townsmen, leaving a long record of massacres.

Settlement might have been discouraged then, were it not for the natural attractions of the site, and several definite factors. The eastern shore, for example, offered additional wharf space for Halifax's growing shipping. Also, the Dartmouth side of the harbour offered excellent opportunities for the establishment of large country estates for the governors and wealthy men of Halifax, for at a very early date Halifax itself was completely staked out.

The town really began to develop with its first industrial project - the whaling experiment in 1784. Whalers from Nantucket were encouraged to come to Nova Scotia, and were given grants of land in Dartmouth, where they were to start a whaling indus-

try. Unfortunately, the experiment ended in financial disaster when a large Halifax firm failed two years later, and the whalers went off to Britain to start again.

Shortly thereafter attempts were made to develop the whole area through the construction of a canal making the Shubenacadie navigable and joining the northern shore of the province with Halifax Harbour. Although an apparently sound idea, this project too was a failure. After years of investigation, consideration, legislation, and finally construction, the first canal collapsed through faulty construction. Though the work was later undertaken by a second company, and eventually completed, it was used very little, and fell quickly into disuse. Soon fixed bridges were built over it at various points inland.

Although the canal itself was a failure, it had its part in developing the town, since many were employed on the project, and workmen were brought over from Scotland, many to settle in Dartmouth permanently.

The greatest economic development of the town came in the middle of the nineteenth century with the establishment of the large plants which still dominate its industrial scene. The Starr Manufacturing Company (1864) chose its site, along the old canal waterway, for its water power. The Sugar Refinery (1865) took advantage of the excellent harbour. The Dartmouth Ropewalk Company (1868-9) wanted a running stream and a large acreage. These companies employed large numbers of people, and with their growth came schools, churches, shops, and other small

businesses.

Other local industries contributing to the town's growth were the cutting and sale of ice (begun in 1836), and, naturally enough in a port, ship repair. A railroad bridge across the Narrows, which might have been useful in promoting industrial growth, was built twice, collapsed twice, and so the project was given up, and a line brought around Bedford Basin. Future plans for a Harbour bridge no longer include the railroad lines.

A plan of Dartmouth as it exists today is shown at Fig. 1.

(b) The Geographical Picture

The most important geographical factors are Dartmouth's proximity to Halifax and the contours and composition of the ground on which the town is built. There being no official surface geological map of Dartmouth available the information shown at Fig. 2 is approximate only, largely the result of personal observation, and as such is subject to error. The preparation of an accurate and more detailed map of this type is an essential preliminary to any detailed planning work. Existing major wooded areas are indicated on Fig. 1. Broadly speaking, the westerly side of the valley is either rocky or full of boulders, cleared and workable ground conditions being available only in pockets; the east side of the valley is far more workable, has occasional bouldery pockets but is generally of clay soils with some good agricultural land.

The dominant features of the climate are the damp warm early summer with occasional fogs, pleasant late summer, cool evenings, and raw winters, with high winds, considerable snow and alternate frosts and thaws. Outdoor living is pleasant in summer; the heavy rainfalls accentuate erosion problems on steep graded unpaved streets. Similarly steep grades aggravate ice and slush conditions which are common in winter.

(c) The Economic Picture

The economic situation is the most significant factor for the future of Dartmouth. The scope of this report is too small to give it the study it deserves. A special investigation of the field seems warranted to be undertaken at an early date. But even from the incomplete information available at present two factors appear to be evident. One is that the prosperity of Dartmouth depends to a high degree on the prosperity of the Maritime economy as a whole. And secondly, that whatever new industries do develop in or near Dartmouth, if they are to be assured of a steady market, must be of a specialist made to order variety; they should also be of a type which demands specifically Nova Scotian materials or skills. A strong case can further be made for industries which utilize the available port facilities. The Sugar Refinery in Dartmouth and Oil Refinery at Imperoyal, both of which convert raw material from the West Indies and South America landed directly at their wharves, into valuable consumer goods, are

convenient examples of this type of industry.

These provisos assume the continuance of conditions which tended to militate against the Maritimes. The pursuance of a national policy of encouraging regional industrial development as opposed to the concentration of industry in the Central Provinces would of course change the picture materially.

Developing and attracting new industries demands careful research and considered inducement. A program is called for outlining the town's future policy in that respect. To maintain the status quo would probably mean that economic activity will remain at its slow pre-war growth, and that the population curve, which shows a constant slope over the past 70 years, will continue as before. On the other hand if an aggressive effort is made to investigate and develop new and special industries which fit into the pattern of the Maritime economy, and if satisfactory industrial sites, properly serviced and with labour and housing at hand, are made available in the town plan, there would appear to be no reason why a quota of economic activity well above normal might not be justifiably expected.

(d) The Human Picture

The total Dartmouth population in 1944 was some 13,613, including 500 service personnel, according to a recent survey. The 1941 census gives a population of 10,919. The number of persons who have arrived in Dartmouth since September, 1939, totals 4,069. The pre-war population was therefore about 9,044.

In 1944 the total child population under 16 years of age was about 6,759 of whom 2,399 were of school age. There are about 2.4 children per family.

The population growth of Halifax and Dartmouth is shown graphically at Fig. 3A. If present trends continue the population in 1971 will be about 17,000.

About 41 per cent of Dartmouth families own their homes and the average period all families have occupied their present quarters is 9.1 years. About 8 per cent of all families keep lodgers, and over 11 per cent keep lodging families. Rents average about \$23.00 and the proportion of families paying rents over \$35.00 is 12 per cent. Wage earner families amount to 71 per cent of the whole population and their earnings average \$1,701.00. However, it is thought that the annual earnings of more than 50 per cent of the wage earning group were below \$1500.00 in 1941, according to the 1941 census from which these figures have been compiled. It should also be borne in mind that they reflect wartime conditions.

No figures are available for Dartmouth concerning the relationship between rent and earnings, but figures for the Halifax metropolitan area are and may be quoted as probably approximating Dartmouth conditions. It has been found that one-fifth is the maximum proportion of income which can be devoted to shelter for families with incomes under \$2,000, without skimping on clothing and food. Any considerable proportion of households paying more than this fraction can be considered as a

group suffering from financial strain and probably malnutrition and overcrowding also.

In the Halifax metropolitan area, and considering single family wage earner households only, one-third of wage earner families received \$1,100 or less in 1941, while another third received from \$1,101 to \$1,700. Family earnings averages in the lower and middle thirds of the wage earner group amounted to \$735 and \$1,371 respectively. Using the one-fifth of income as standard for rentals, we find that the average reasonable rentals for the middle and lower third income groups in the Halifax area amounts to \$22.85 and \$12.25 respectively.

Actual rents for tenants in the lower third of the Halifax district family earnings range, i.e. \$1,000 a year or less, averaged \$18 per month in 1941. This is about 50 per cent more than they could afford. In 1941 there were about 4,000 tenant households in this group, about two-thirds of whom were paying more than 20 per cent (\$12.25) of income for shelter. In the middle income range the situation was better. Rents averaged \$26.00 as against the \$22.25 equalling one-fifth of earnings. About 40 per cent of tenant householders in this group of 4,000 were estimated to have exceeded one-fifth of income for shelter.

Family income tends to average rather higher than actual earnings but the difference is usually small. But even allowing for this and the fact that many earnings were probably understated to census enumerators, it is still clear many house-

holds in Halifax and Dartmouth are paying higher rents than they can afford.

Important conclusions can be drawn from these figures for a rehousing program. Rehousing is required most urgently in the middle and lower income groups. It is possible that some of the middle income group families averaging \$1,371 per annum can be provided with new homes under the National Housing Act, but it is highly improbable that any of the lower income groups can be properly housed without extensive subsidization in one form or another. Building in Dartmouth after the war on any considerable scale would appear to depend very largely on the extension of present legislation.

(a) The Social Picture

There are 2,792 dwellings in Dartmouth according to a recent survey and of these 1,596 were classified as being in good condition, 975 as in fair condition, 159 in poor condition, and 62 in very poor condition. The 1941 census shows that only 70 per cent of the dwellings in the Halifax fringe area had running water, but this figure is inaccurate for Dartmouth, being nearer 90 per cent. Similarly the 1941 census showed that only 66 per cent of the Halifax fringe area dwellings had private toilets, 30 per cent of the dwellings had no inside toilets, and 35 per cent had no bathtub or shower. These figures are also probably inaccurate for Dart-

mouth and should be higher.

45 per cent of dwellings are stove heated, hot air systems coming a close second. Only 14 per cent of dwellings were equipped with electric stoves. There is no gas in the town. 41 per cent of dwellings had no refrigeration facilities. 15 per cent of dwellings were equipped with radio, vacuum cleaner, telephone and automobile, while 7 per cent had none of these conveniences at all.

Generally speaking the layout of the great bulk of dwellings is considered to be poor. About 82 per cent of the occupied dwellings are single houses; 10 per cent are flats or apartments; 8 per cent are semi-detached houses, with row houses making up the remainder. Over 90 per cent of them are surfaced with wood, and the 1941 census classified 18 per cent as in visible need of external repairs. A rough picture showing the physical condition of Dartmouth's dwellings is given on Fig. 4. This map was compiled from the findings of a house to house survey which classified the physical condition of houses into four categories, good, fair, poor, very poor. The classifications shown in the map are averages per block side, worked out on a percentage basis. The average home has 5.5 rooms and 13 per cent of dwellings had 8 or more rooms. A very large proportion of dwellings have been laid out without much consideration being paid to surrounding dwellings and the condition of backyards in general is not good. A very common feature is the construction of rows of dwellings on lots 35 to 30 feet wide or less, each house nearly

covering the lot and leaving a space three or four feet wide between it and the next house. This space is usually of no particular use and serves only to collect snow and trash. It was also thought that the layout of garages and outhouses in many cases was poor, both from the point of view of convenience and appearance, and rarely took advantage of the sloping sites on which they were so frequently built.

There is a noticeable shortage of public playgrounds in the town, and although swimming and boating facilities are available on Lake Banook, there are no tennis courts, no indoor skating rink, and no gymnasium.

Figures on health, family welfare, child welfare, and juvenile delinquency are not available, but the Clergy Teachers' Study Group of Dartmouth, who are familiar with this aspect of the life of the town, consider that present conditions warrant the setting up of a Social Welfare Bureau, a Juvenile Delinquency Court, and a Domestic Relations or Family Court when the war is over. They also recommend the setting up of a cooperative hospitalization plan, the construction of a local general hospital, the institution of a Health Insurance plan, an extension of the existing nursing service, annual medical examinations for all and the establishment of a psychiatric clinic. The realization of such a program would no doubt mean great social improvements for Dartmouth.

The social desirability of most of these features is probably well founded, but the methods of carrying the program out

and of financing it, would require considerable further study.

Cultural facilities at present are meagre. Library service is inadequate and the possibilities inherent in the community center idea (see page 36) have not been exploited.

Requirements in the existing school set-up that affect the town's physical plan are as follows: a separate single Junior High School has been recommended by the Teachers' group to serve the present population; the provision of school playing fields is inadequate and existing grounds are capable of considerable improvement; the need has been expressed for some form of nursery school or kindergarten service.

A word on the general amenities of the town. Dartmouth has an unrivalled site, most of the beauties of which are still intact but which are not developed or protected to the extent that they might be. One's immediate reaction after a first visit is to think of preserving the park character of the area around Sullivan's Pond and lower Lake Banook, and carry it down into the center of town, which is now rather arid and in places comparatively treeless. A careful tree planting program would do a great deal to improve sections of the town which are already built up. Further proposals to improve the general amenities are implicit in many of the recommendations which follow this brief survey.

(f) The Ground Plan of the Community

Utilities

The existing below ground utilities with the exception of

the water lines serving the Wartime Housing project at Tufts Cove^x are plotted at Fig. 5. The sewer plan bears the marks of piecemeal development, and if Dartmouth is to expand, its modification merits very careful study, well beyond the scope of this report. At what population size the provision of a disposal plant or plants will become imperative, it is difficult to say, but the point is not far off. The configuration of the site makes the location of a main treatment plant feasible at or near the present stream outlet into Dartmouth Cove, but developments along the east and west shores may possibly indicate the necessity of two additional installations to serve these areas. The town's water supply comes from Topsail Lake on the Preston Road and appears to be adequate. The recent construction of a new water tower on the height just south of Maynard Lake has opened up an area in which water was previously either not available at all or only at a very low pressure.

We have no figures or maps showing the need for street and sidewalk paving in Dartmouth. Suffice it to say that a considerable proportion of subsidiary roads are unpaved and that there are few paved sidewalks apart from the main highways.

Traffic

At the moment, Dartmouth is divided into two traffic areas, one on either side of the river valley axis. Traffic entering Dartmouth from Halifax radiates from the ferry, either finding its way around the town, or going through it by one of three

^xThese lines have subsequently been located and inserted in Fig. 5.

routes; via Portland and Pleasant Streets to Eastern Passage; along Windmill Road to military and industrial sites on Bedford Basin; and north along Prince Albert Road to Waverly and Preston. These conditions are illustrated graphically at Fig. 6. This diagram can only serve as a general guide. The stations where traffic counts were taken are indicated; the counts however, were not all taken at the same time, so the picture presented is not accurate for the whole town during a given hour of a given day. For instance on Saturday the volume of traffic coming in on the Musquodoboit road increases sharply.

There are five major traffic inconveniences in Dartmouth at present. The worst one is probably the congestion which occurs on down town Portland Street caused by the natural funnelling of traffic to this area, and the curb parking of cars which aggravates the condition. At first sight it was thought that this situation could be relieved by routing east-west traffic away from the down town ferry section. However, on investigation it was found that the percentage of genuine east-west through traffic passing the ferry approach, even at peak periods, was never more than 15 per cent of the whole.

There is also the confusion at the junction of Pleasant Street, Albert Street and Portland Street. The majority of the town's traffic accidents have taken place at this point.

The other inconveniences are of a minor nature. The grades on Windmill Road in places are severe enough to cause some dif-

difficulty during the winter months. Upper Portland Street and Pleasant Street, both good residential streets, are traversed by considerable traffic which may increase in the future.

Land Use

The existing land use picture is shown at Fig. 7. There does not appear to be any really serious maladjustment in the pattern as it stands. The two major criticisms are: (a) that the present allocation of open space is overly concentrated in Dartmouth Common and on the town outskirts; more local areas need to be provided; and (b) that the Starr plant is badly located from an amenity point of view. There is also a tendency for the land which is most desirable for public park development to be sold for high class residential use along the shores of Lake Banook. Industry has tended to develop in the area most suited to it, along the sea shore where rail, road and shipping facilities are available. Much of this development is very visible from the rest of the town, however, particularly in the Dartmouth cove area and it is thought that consideration should be given to the development of a screen belt of trees between the town and its industrial zone.

In general the major land use areas for commercial, industrial and residential use are located in the most suitable areas (with the exception of some blocks of homes on Windmill Road, Fairbanks Street and Water Street). The major requirement is to define these areas more clearly and redistribute open space more evenly.

We now have a fair picture of the town of Dartmouth. The main favourable points are (a) a beautiful site, largely unspoilt; (b) no glaring faults in the land use pattern: the natural industrial zone along the waterfront and the main dwelling areas overlooking the lakes are kept relatively distinct. Unfavourable features are (a) a high proportion of buildings and dwellings in poor structural condition and poorly laid out; (b) the sewer system leaves much to be desired in its ability to cope easily with any future expansion; (c) a great deal of paving remains to be done; (d) small playgrounds and parks are inadequate.

The problem then, is to find the simplest possible way to eliminate existing defects, and to enhance and develop the many inherent and existing advantages, while keeping within the bounds of financial practicability.

RECOMMENDATIONS

General

In planning for the future of Dartmouth, three sets of conditions have to be considered.

First those facts which are known and unalterable, such as the geology and topography of the site, the climate of the locality, and the natural resources of the region in which it is set.

Second, those key facts which cannot be known with precision for any considerable period ahead, and which call for considered judgment and studied assumptions based on the findings of the Survey. For example, future population increases depend largely in this case on rather uncertain economic forecasts and the construction of a harbour bridge; and both of these factors are influenced by decisions of the Dominion and Provincial governments. Future building and construction activities, in addition to being contingent on local economic conditions, are also dependent on the post-war lending policies pursued by the Dominion government.

Thirdly, there are those factors which give purpose to the plan. Existing conditions which are unsatisfactory and which can be improved locally without any outside assistance or increase in prosperity; ways of rearranging new and old houses, roads, and open spaces; new uses to which old buildings can be put, new social services, the development of a lively civic consciousness and so on.

Site conditions come first. Dartmouth is situated in a pleasant wooded valley running north-south to the sea and containing two lakes and a stream (Fig. 1). These lakes, particularly the lower one, act as a focus for the whole town, and, together with the stream, mark an axis dividing it into an east and west bank. The seafront faces south with rather steep grades from the shore. Broadly speaking, Dartmouth can be divided into five geographic areas; an east and west side to the valley overlooking the lakes; an east and a west side to the valley overlooking the sea; and the downtown area where the stream enters the sea. The west side of the valley, although considerably built up, is predominantly rocky and full of boulders. The east side, with the exception of a few pockets, is mostly composed of clayey soils of a more workable nature. Soil conditions would therefore lead us to believe that future expansion will take place on the eastern side of the town unless other more powerful factors enter the picture.

Assumptions concerning future population growth and construction activity are influenced largely by three factors, - the construction of a harbour bridge, the utilization of National Housing Act facilities, and the possibility of public works projects financed by the Dominion government. The National Housing Act and any future extensions which may be given to it, is of particular importance when considering replacement of those dwellings now in poor to very poor condition, and the provision of sufficient well planned low cost housing to take care

of population increases.

It has been assumed that the rate of population increase, which has remained comparatively steady over the last 60 years, will be maintained and that in twenty years time the population of Dartmouth will have increased to about 17,000. (Fig. 3A). If present trends continue, the population of Halifax during the same period will have increased from 70,488 to about 95,000. It is estimated that at least 6,000 of this Halifax increase will be taken up by Dartmouth should a harbour bridge be built: should the ferries remain the only means of communication, this figure will be reduced to 3,000. A conservative estimate, therefore, puts Dartmouth's population in 1965-70 at 17,000 - 20,000, while if events are more favourable, 23,000 is a reasonable possibility.

Since the harbour bridge is at present under consideration, any scheme which did not take the bridge into account would be suspect. It would seem logical that the general plan should be developed in such a way as to provide for a bridge and anticipate its construction, and yet work perfectly well even if the bridge is not built - at the same time allowing for any future reversal of such a decision.

It has also been assumed that there will be but modest industrial expansion in Dartmouth since there has been no indication to the contrary. At the same time there is opportunity for some development, and several good industrial sites exist

in the town. These have been carefully segregated from living and recreational areas, a feature easy to accomplish as the town has hillsides for living and lake side for recreation, leaving the sea front free for industrial use, completely serviced by road, railway and shipping facilities.

Traffic

If we assume that a harbour bridge will be built in the location considered most feasible from an engineering point of view (Fig. 3B) the existing traffic pattern is complicated in that traffic to and from Dartmouth will then travel along two routes, the bridge and the ferry;¹ through areas of cross town traffic which, though of insignificant proportions today, will increase due mostly to the fact that Halifax-Eastern Passage traffic to Imperial, the Sugar Refinery and the Airport, will tend to use the bridge in preference to the ferry. Westerly traffic along the north shore of Bedford Basin may increase in time; but it would seem doubtful that the bridge would take much Halifax-Waverly traffic, as the saving in mileage is only slight as compared with the Bedford Basin route, and would hardly warrant the extra toll expenditure. The bridge would, however, open up the most pleasant area suitable for residential develop-

^{1/} It is very unlikely that the construction of a harbour bridge will render the present ferries superfluous although the traffic they carry, will of course, drop considerably. In no case within recent years where bridges or tunnels have replaced ferries have the ferries disappeared entirely from the scene. New York, San Francisco, Liverpool, Vancouver, all retain their ferries in spite of new bridges or tunnels.

ment left near the centre of Halifax, that section to the north and east of Mount Thom looking down on Lake Banook, and it may be assumed that a considerable proportion of bridge traffic will be from this area.

In the general plan suggested (Fig. 8A) the natural traffic routes described in the Survey have been defined and controlled. Two roads, one on either side of the lakes, run straight down to the town centre and the ferry, finishing in Portland Street and Ochterloney Street respectively. These, together with Portland Street and Pleasant Street, form the main traffic routes from the residential sections to the town centre. It is proposed to continue the park area around Lake Banook and Sullivans Pond all the way down past the present High School and into Queen Street, which eventually will become barred to traffic and be converted into a purely pedestrian park area onto which rebuilt commercial and public buildings will face. Traffic which at present concentrates on Portland Street will be distributed between Portland and Ochterloney, and all parking will be restricted to the stopped off remains of Dundas, Wentworth, King and Edward Streets. Thus all buildings in the down town section have vehicular access and car parks on one side and pedestrian access on the other. Pedestrians are taken off the streets completely and shopping and business can be carried on from building to building without having to cross a road at all. It is not for a moment suggested that this arrangement is immediately realizeable. It requires some study to ascertain what population would be necessary

to support such a down town section: but as the area set aside provides sufficient space for approximately two and a half times the area of commercial and public buildings now existing, it is thought that such a scheme would be feasible when Dartmouth doubles its population, a possibility which would appear to be not at all unlikely in the next twenty or thirty years especially if the harbour bridge becomes a reality. Consequently it is suggested that an arrangement of this nature be aimed at now and that new buildings such as a new town hall, public library, clubs, stores, cinemas etc. be sited in this area so that they will fit into a scheme of segregated vehicular and pedestrian traffic, which has as many practical advantages as it has aesthetic ones. The centre of Dartmouth would then consist of a long formal park strip, some old buildings on Queen Street being preserved in it no doubt, and leading up from the ferry past the High School to the natural centre of the town just in front of the old dam at the foot of Sullivans Pond. It is suggested that this area be kept open and used as a public meeting place, for from here one can with one sweep take in the whole town at a glance.

In order to make possible this park strip, it is necessary to condemn the Starr factory, a suggestion which has already been put forward from time to time by civic groups. No major structural changes other than this are necessary. A short strip of Ochterloney Street, between Crichton and Prince Albert Streets

has been removed to keep the park strip free and to keep the two traffic lanes separated.

With the proposed Harbour bridge approach located in the vicinity of Lyle Street, a new road to open up the area north of Mount Thom has been suggested around the west side of the hill through the present Golf Club property. The primary purpose of this road is to connect up a new residential area and lake-side park with Halifax, but it may be found worthwhile to connect with the present Dartmouth-Waverly road either by a bridge across the narrow neck between the two lakes or possibly around the head of the Second lake, a more dubious course due to the rough country. Either of these courses would open up a somewhat more direct route from Halifax to Waverly than exists at present, but, as noted above, the bridge toll would seem to nullify this slight edge in mileage.

There are two routes suggested for this connection across the neck of the two lakes (Figs. 8A and 8B). The latter offers some advantages for the layout of living areas but the grades are not too satisfactory.

A direct connection from the harbour bridge approaches to Windmill road provides ready access to the north side of Bedford Basin and industrial and military installations along the Dartmouth shore. Windmill Road is not too well graded and tends to become difficult for traffic during and after heavy snowfalls, and the alternative of extending Wyse Road to a junction beyond

the present town boundary with the north shore road is worthy of consideration. Such a course was discarded however, as it cuts a potential new residential area in two, and because Windmill Road will have to remain in operation anyway, it being the only means of access to the existing hilly military and commercial installations on the shore. Sections of the road could be regraded and a higher bridge built over the gully below the Rope Works.

To take care of the Halifax Eastern Passage traffic, which may be quite considerable, it is suggested that Wyse Road be continued around the contours at the southerly corner of Dartmouth Park and up between the public and Christ Church cemeteries before turning into Victoria Road and crossing over to the junction of Prince Albert and Portland Streets. Thence it follows the present route out of town towards Imperoyal. This arrangement, of course, has the effect of isolating through traffic from that part of Dartmouth with which it has nothing to do. The construction of this road is a very expensive proposition. It is entirely unnecessary if the bridge is not built, and unwarranted unless the pressure of cross town traffic from the bridge along Windmill Road, Commercial Street and Portland Street reaches the status of a public and commercial inconvenience. But with Dartmouth double its present size and with traffic along the Eastern Passage road reasonably active there would be a very definite argument in favour of its construction.

It was decided to retain the Musquodoboit Road in its present position up Portland Street, for though it is not quite satisfactory, no other location is any better, and the amount of traffic it carries is small and is likely to remain so.

Neighbourhoods

The layout of the main lines of communication having been settled, it will be noticed that large areas remain in the spaces between them (Fig. 8A). It is proposed to develop these areas as clearly defined neighbourhoods. At this point it would be well to consider the principles and arguments in favour of neighbourhood planning, as they constitute the backbone of the suggestions for the Dartmouth general plan we are describing.

Neighbourhood planning is first and foremost a method of making an area more pleasant and effective for living, working and playing. All its other advantages, economic as well as social, stem from this first aim. Let us list the necessities which can justifiably be expected of a "pleasant place to live" and see what kind of a pattern they form when they are provided for all families, and then check on the other advantages which this method secures as against the haphazard development so common in our small towns and cities today.

(a) When building a new home, a family wants a reasonable amount of privacy. It does not want neighbours or casual passers-by to be able to look into the windows of its home, and it would prefer any area used as a private garden to be private and not overlooked by neighbours' windows. It would naturally

like a large lot, and as much space around it as possible. These elementary stipulations alone require a considerable amount of planning and control when houses are laid out next to each other along an access road. (Fig. 11.)

(b) All members of the family would like a pleasant view, out onto a park if possible; and of course, some open space where the children can play under supervision from the house.

(c) No family wants to be near a railway, or a rubbish dump, or to have a noisy traffic highway outside the front door. It doesn't want to be adjacent to a garage or to have a steam laundry over the way. And it doesn't want to live in fear of any one of these calamities coming to pass after it is established in its new home.

(d) It wants satisfactory storage and parking arrangements for its car and for visiting cars.

(e) The family wants the local stores to be just around the corner within walking distance, and it would like a nursery school and supervised children's playground a few minutes away. A common school, a branch library, some larger stores, a garage, a community centre, all these should be available within a short distance, by car during bad weather, on foot during fine days, preferably by footpath through park area, avoiding traffic filled streets. The town centre, with big stores, theatres, etc. should be a few bus stops away or within pleasant walking distance: and the same applies to places of work.

It will be noticed that there is nothing radically new

about these demands except possibly the request for more park than is usually available, the community centre, and the hint that people who are walking do not necessarily want to get mixed up with those who are driving. Securing such facilities is merely a question of the arrangement of new development and the rearrangement of the old; and arrangement means planning and planning means enforcement.

It will also be noticed that these demands progress in steps. Some facilities are required "just around the corner". Others may be a few minutes away, and yet others need a bus ticket. Now it is usually found that around 250 families with an average size of about four can support a small neighbourhood store. (This figure is an average only, as in fact it varies astonishingly in different parts of the country.) This number of families would have a sufficient number of babies and small children to support a nursery school and supervised children's playground. These two items at present appear a luxury, but if present trends continue, will soon be considered necessities. This group, within walking radius of school, shop, and playground, can be taken as a single unit on which to build a more coherent neighbourhood system. The common school draws its pupils from anywhere from 750 to 2500 families. Around 1250 families is a good average - about five groups of 250. This number can also support a more ambitious group of stores, a community building and so on, depending on the com-

munities' composition and tastes. Major industrial and commercial working areas would be located outside the neighbourhood in neighbourhoods of their own, but light commercial and industrial areas under strict control might be allowed inside. When all these features are laid out and an effort is made to isolate pedestrian from vehicular traffic, the neighbourhood unit pattern automatically results. (Figs. 8B, 9 and 10.)

A group of five or six such neighbourhoods combined form a municipality, with its town hall, high school, stores, offices, public library, theatres and business section. The town is complete, each section is a unit in itself, yet the whole is completely articulated and capable of orderly change. Many social and economic advantages result from this method. The town has a primary stake in good neighbourhood development. As municipal governments derive the greater part of their income from taxation on real estate it is clear that wisely planned development of municipal services - highways, sewers, water supply, schools, parks and so on - can materially increase tax sources, and that rearranged run down sections can stop blight and start values on an upward trend.

As much as one-fifth to one-quarter of the rental dollar usually goes to real estate taxes. But even this high proportion fails to pay for all the services which a municipality has to provide. It is well known that only the more valuable properties are capable of paying for the services with which they

are supplied. There are in consequence many attempts made to eradicate the low cost dwelling altogether, with the idea that such action will improve the tax situation. Of course the very reverse is true as segregation results. Large neighbourhoods of exclusively low cost or low rental dwellings tend to be undesirable from the point of view of municipal finances. They are not self supporting elements in the tax structure; they are very susceptible to blight (which is infectious) due to overcrowding, poor planning and poor appearance; they breed crime and disease, and they are not democratic. As the money for their support comes from taxes on industry, business, and higher cost residential properties, these sections of the community are anxious to see the blight stopped and prevented from recurring. The only way of doing this effectively is to establish balanced housing areas rather than attempt to segregate or forbid low cost housing altogether. Although such a course will inevitably lower values in very high cost areas, the ultimate effect is to raise average values and lower operating costs, as police and fire protection, social and health services can be provided more economically. But the major advantage to a town of a well planned and socially balanced neighbourhood unit from the financial point of view is that its virtues are built into it from the beginning in the way of parks, quiet traffic free streets, convenient shops, etc. There is a place for everything and everything is in its place. The chances of such

an area ever becoming run down are very much reduced.

With these principles in mind, a general plan for Dartmouth has been outlined (Figs. 8A and B) and drawn up in greater detail in Figs. 9 and 10. This latter plan is quite hypothetical in detail and merely serves to illustrate the type of development that is thought desirable. Six neighbourhoods are indicated altogether, although it is very unlikely that they will all be built. If no bridge is constructed, (a), (e), and (d) (Fig. 8A) will tend to grow, group by group. If a bridge is built (c), (b) and possibly (f) (difficult terrain may retard the development of (f)) will tend to grow at the expense of the other side of the valley. The groups within the neighbourhoods are clearly indicated in Fig. 8B. With an average density of about 7 houses per acre, and a rough average of 250 families per group the populations of (a), (b), (c), (d) and (e) are as follows:

(a) - 3 groups	- 800 families	- 3200 people
(b) - 5 or 7 groups	-1750 "	- 7000 "
(c) - 5 groups	-1250 "	- 5000 "
(d) - 6 "	-1500 "	- 6000 "
(e) - 5 "	-1250 "	- 5000 "
(f) - 4 or 6 groups	-1000 "	- 4000 "

If the lower road arrangement indicated in Fig. 8B is used in the vicinity of neighbourhoods (b) and (f), the two upper communities in (b) can be transferred to (f).

As far as possible a loop type of road system has been chosen for all new development as it is considered the most satisfactory road arrangement from both the standpoint of convenience and economy. Naturally the most economical form of

development in terms of roads and utilities per house, is the continuous strip built up on both sides; the typical gridiron plan may add to this road area as much as 80 per cent, but decreases the number of possible houses. It tends to be a rather uneconomic arrangement. At the other extreme lies the 100 per cent cul-de-sac system which produces vast super blocks, and complicates vehicular circulation, but is economical in road surface and utilities per house. As soon as road lengths go over 350 feet the loop shows advantages over the cul-de-sac, both of convenience and economy. The road width in a long cul-de-sac has to be greater than that of a comparative loop, and the loop also shows similar savings in utilities. Vehicular circulation is, of course, greatly improved. The developed site plan (Fig. 10) has elements of both systems. There are no service roads or culs-de-sac used purely as such. Long loops stemming from the main roads create blocks free of through traffic. Pedestrians can safely cross these loop streets to the common park strips leading from all parts of the neighbourhood site to its centre and to the main town centre. The park strips filter in through the long loops. Driveways do not back out on intersections or main roads. Where houses face a main road, their driveways should enter around a corner from the side street. Grades are always arranged to facilitate easy paving and surface drainage; access roads always slope gently up from subsidiary roads and these in turn grade down to main highways. There are no serious difficulties in the way

of providing storm and sanitary drainage over the whole site, although considerable alterations would be necessary to some of the existing down town sewers, particularly if a treatment plant were eventually provided, possibly near where the stream at present discharges into the harbour.

Schools and Community Buildings

Apart from the new nursery schools suggested which should each accommodate up to 30-35 infants, four new schools have been indicated and also the enlarging of the present high school.

Common schools already exist in neighbourhoods (a) and (c), and there are parochial schools in (b) and (c). Two new junior high schools are suggested, located on either side of the valley near the summits of Mount Thom and the park in the centre of neighbourhood (d). Close to these and located in the same parks are two new common schools. Should neighbourhoods (e) and (f) be built, an additional new common school would be required for each. This gives a total of 6 common schools, (one to each neighbourhood), two junior high schools and one senior high school for the whole town. There are two parochial schools on the west side of the valley and two more would probably be required for the east side.

All town planners and social workers consider the community centre a very desirable feature of neighbourhood development, a conviction rarely shared by the commercial builder, who is primarily concerned with profits and a high income group.

The facilities provided by the common school and the community centre so often coincide that it is thought feasible to have the same building fulfill the two functions wherever possible.

The community centre should serve both as a meeting place for group political, civic, and social activities and also for those activities, usually of a social, recreational and educational nature, which cannot take place in the home either for lack of space or of equipment. The centre would provide facilities for woodworking, photography, painting, lectures, debates, theatricals and so on, which are necessities to a full and cultural civic life.

The combination of the two functions of school and centre in one building admittedly has administrative complications and demands a cooperative attitude on the part of the school authorities. In practice the operating builder refuses to accept the responsibility, and perhaps, in the income range to which he is accustomed, justifiably so. However, the social needs of all income groups must be met and the simplest way of arranging for this is to make the centre part of the school set-up.

The basic criteria for common schools are well known but rarely followed owing to the difficulty of securing large enough sites after an area has been developed. In the present case, sufficient land has been reserved for their use and tied into the public park system. The school should be designed with a wing for the general public including a meeting hall, branch

library and child care clinic. The latter two items are in the same category as nursery schools - present-day luxuries which eventually will be conceded to be necessities.

Parks and Recreation

Local park and recreational needs within each neighbourhood are rather obvious and will only be touched upon lightly. The provision of children's lots is probably unnecessary in single and semi-detached house development but in row house areas they are essential. Play areas for common school children are desirable for all neighbourhoods. They should not serve more than a quarter mile radius, simply because children will not go further. They need not be large; and they serve to keep boisterous children off the streets and public parks in areas more suited to their vigorous activities. Larger playgrounds for adolescents are equally important and can conveniently be made part of the school grounds. Quiet parks for adults can easily be planned around public buildings, the branch library, fire house and so on.

How and by whom these parks should be developed and administered depends on particular conditions. In large developments, it may be possible to set aside the necessary spaces, either dedicating them to the town for maintenance, or making provision for maintenance through ownership associations. When the land is developed in small pieces however, provisions by the municipality would appear to be the only method.

The five or six major recreational park areas within the

town proper, should of course be under municipal control and supervision. Lakes Banook and Micmac and Sullivans Pond are the town's major physical assets, and their shores should be in public ownership and developed as a metropolitan recreational area. The slopes around Oat Hill Lake being extremely rough, it is proposed that this area be made into public park area opening out on to the slopes facing Lake Banook. The two other sections most worthy of careful park development are the town's two high points, Mount Thom and the area around the new water tower.

Housing

In the future, residential construction in Dartmouth will be of three types:

(a) Building on vacant lots in areas or on streets which are in good condition, well located, and likely to remain so; also the rebuilding of the isolated dilapidated house which exists in such surroundings today to a surprising degree.

(b) The reconstruction of groups of delapidated dwellings, or the construction of groups of new dwellings in areas or on roads where utilities are already installed.

(c) The construction of completely new developments on the outskirts of the town.

In all cases, it should be attempted to make residential streets purely local in character with no through traffic, and to isolate pedestrian traffic into internal park strips on the garden side of the houses. (Fig. 11.)

This involves a rather different approach to the house

plan, as the conventional front has now become the back containing the service entrance, the back garden is no longer the area for shacks and miscellaneous rubbish it so often is at present, but the main approach way on foot.

Of the 1100 odd houses in Dartmouth which are in fair to very poor condition, it is estimated that approximately 600 will be entirely rebuilt within the next twenty years, and that there is also the possibility of some further 2700 houses being built in that period to accommodate estimated population increases. (See Fig. 3A.) Many of these houses will be built on sloping land on streets which run parallel to the contours. A very large number of the existing houses in Dartmouth are built on such sites. As it is, they are, with few exceptions, rather poorly planned, and not laid out to exploit the possibilities of their location; consequently some small house plans have been shown at Fig. 12 to demonstrate a few arrangements which are possibly more effective.

Plans (a), (b) and (c), are for the up slope side of the street, and plans (d), (e) and (f) are for the down slope of the street. It has been assumed that the street runs north and south, and the grade (shown at Fig. 11) is about the same as that of Beech and Maple streets. To facilitate comparison between single, semi-detached and row house types, all the units shown are 21 feet square (inside dimensions) which is just about the minimum practicable. As the Dartmouth family averages just over four people, three bedrooms are provided in each case. The

price range should be around \$3,500. The lot width has been taken as 40 feet, and the plans are drawn assuming the road is on the lower side of the house in each case.

The major defects of Dartmouth hillside housing at present are:

(a) Lack of privacy; doors, windows, and walks of neighbouring homes often overlook each other to an embarrassing degree;

(b) Bad location of garages, with long drives and steep grades both of which become extremely inconvenient in winter;

(c) On narrow lots, houses frequently are built to within one or two feet of each other, a practice which is both uneconomical, dirty and dangerous;

(d) Untidiness of outhouses and back yards;

(e) General lack of exploitation of the advantages a sloping site gives.

When planning for the upgrade side of the street, care has been taken that garage and utility rooms should be placed on the first floor convenient to the road, that living areas should be on the second floor opening out at grade on the garden side, and that bedrooms should go on the third floor. Kitchens overlook the service street, yet at the same time look out on an area where clothes can be dried and playing children supervised. The living room should be flexible, and in this case (plans (a), (b), (c)) is divisible into three separate small rooms. There is easy access to the entrance both from street and garden, and storage

space for pram and coats is provided. There is direct access from the garage to the house, and the garage can be lengthened if necessary by including workshop space. Each floor can be easily replanned as the only structural support is one column in the centre of the floor. It is suggested that the bathroom be arranged so that W.C. and bath are in separate compartments opening off the washing space, thus enabling bathroom facilities to be used by three members of the family at once.

Each dwelling unit has been designed as near a cube as possible to reduce the amount of expensive outside wall and to reduce heat losses; to reduce the size of the roof; to keep plenty of space around the house when located on a narrow lot; and to enable the north wall of each single house to be windowless, thus ensuring complete privacy between neighbours. (Fig. 11, plans (a) and (d).)

Further economies can be made by grouping this plan into semi-detached pairs (Fig. 11, plan (b).) The space between houses is then doubled, and one external wall is saved.

Neither well planned semi-detached nor row house dwellings have been used to anything like the extent they could or should be. Both types allow for greater play of architectural treatment, and both tend to use the available land more effectively than single houses when densities rise above six dwellings per acre. The prejudice against row houses is largely due to the fact that in the recent past they have, due to their inherent economies, been used to house very low income families, and have almost invariably

been very badly and meagerly designed. A glance at plans (c) and (f) will show that few of the facilities of the single house are missing, that the dwellings are, if anything, more private, and that if they were to be built to the same budget as plans (a) and (d), the economies inherent in their construction would enable them to be considerably larger.

When planning for the down slope side of the street, houses should be built nearer the road both to facilitate the installation of utilities and to provide an easily negotiable garage driveway. A moment's consideration shows that the most desirable position for the living area is at grade facing the garden. The excavated area behind this however is pure basement space and should be used as such. Garage should be at road grade and bedrooms on the third floor. These allocations of space for both up slope and down slope plans are basic, but their arrangement allows of many modifications. For instance, in each of the six plans the staircase can be placed in three different locations (on all sides but the garden side) and a new combination to suit different tastes results in each case. If plan (c) should be objected to because of its internal staircase, which requires a small top light or glass panels in internal doors to light it, the plan could with very minor changes be turned round so that the staircase is lighted from the street.

Other features common to good house plans are present: plumbing is concentrated; closet space is ample; the plan can

be easily laid out on a modular system to produce standardization of structural parts and interchangeability of fittings and equipment; garbage can yard, fuel chutes, garage doors, are all convenient to the service street; the hall space is ample, when one considers that the staircase literally forms part of it; all rooms are completely private and circulation space is isolated from accommodation space; and the plans (a), (b) and (c) can be used for level sites if necessary with the first floor either at grade or excavated as a semi-basement.

CONCLUSION

As stated earlier, this report has been put forward more as a stimulant than as a final answer to a situation. What value it has will be measured by the extent to which it induces the citizens of Dartmouth to thoroughly study and produce their own solution for their town, rather than passively endorse the suggestions put forward here.

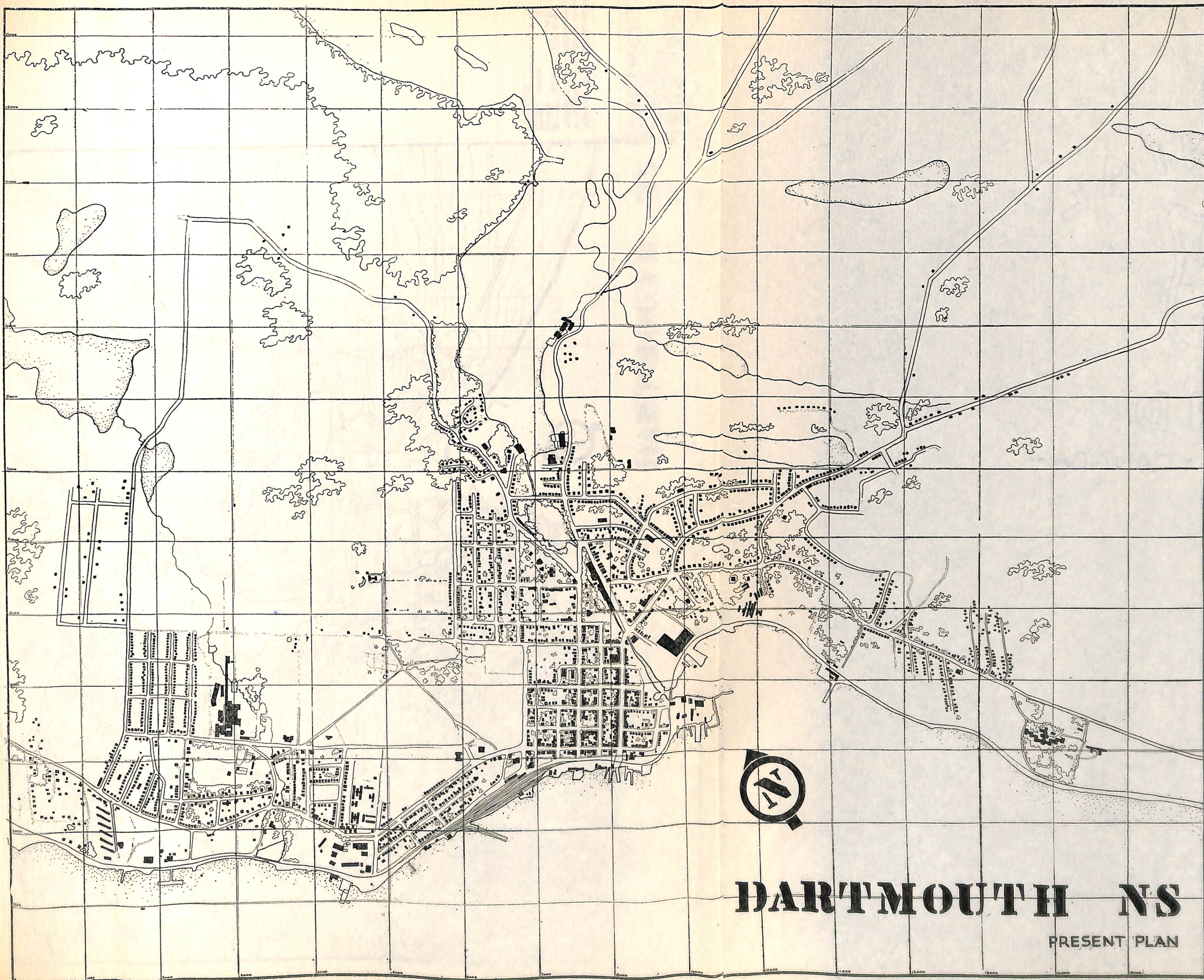
Now that a possible general plan has been described, and the methods of arriving at it outlined, steps should be taken soon to conduct both a detailed physical and economic survey of the town and to criticize and modify the plan in the light of the findings. The aim of the two surveys will be to give first an accurate picture of the physical and social condition of Dartmouth and secondly to produce a reasoned forecast of Dartmouth's economic future, its job providing capacity, and its economic suitability for new private industries or public community projects. It is only on a sound factual survey basis such as this that plans for the future can be built.

Given public interest and cooperation, the Nova Scotia Town Planning Act provides enabling legislation sufficient to give the Town Planning Board representing the citizens of the municipality well nigh complete control over nearly all aspects of the future development of their town. The various provisions of the 1944 National Housing Act set up facilities for stimulating home building in the middle income groups, and if judiciously administered, in the lower income groups as well. Let us see that these opportunities are used to good purpose.

Note

The following cuts are reduced in reproduction to approximately 1/16 of the size of the original drawings.

Consequently where a scale is shown in these cuts it should be increased approximately four times.



DARTMOUTH N.S.

PRESENT PLAN

FIG. 1—MAP showing existing roads and buildings in Dartmouth.

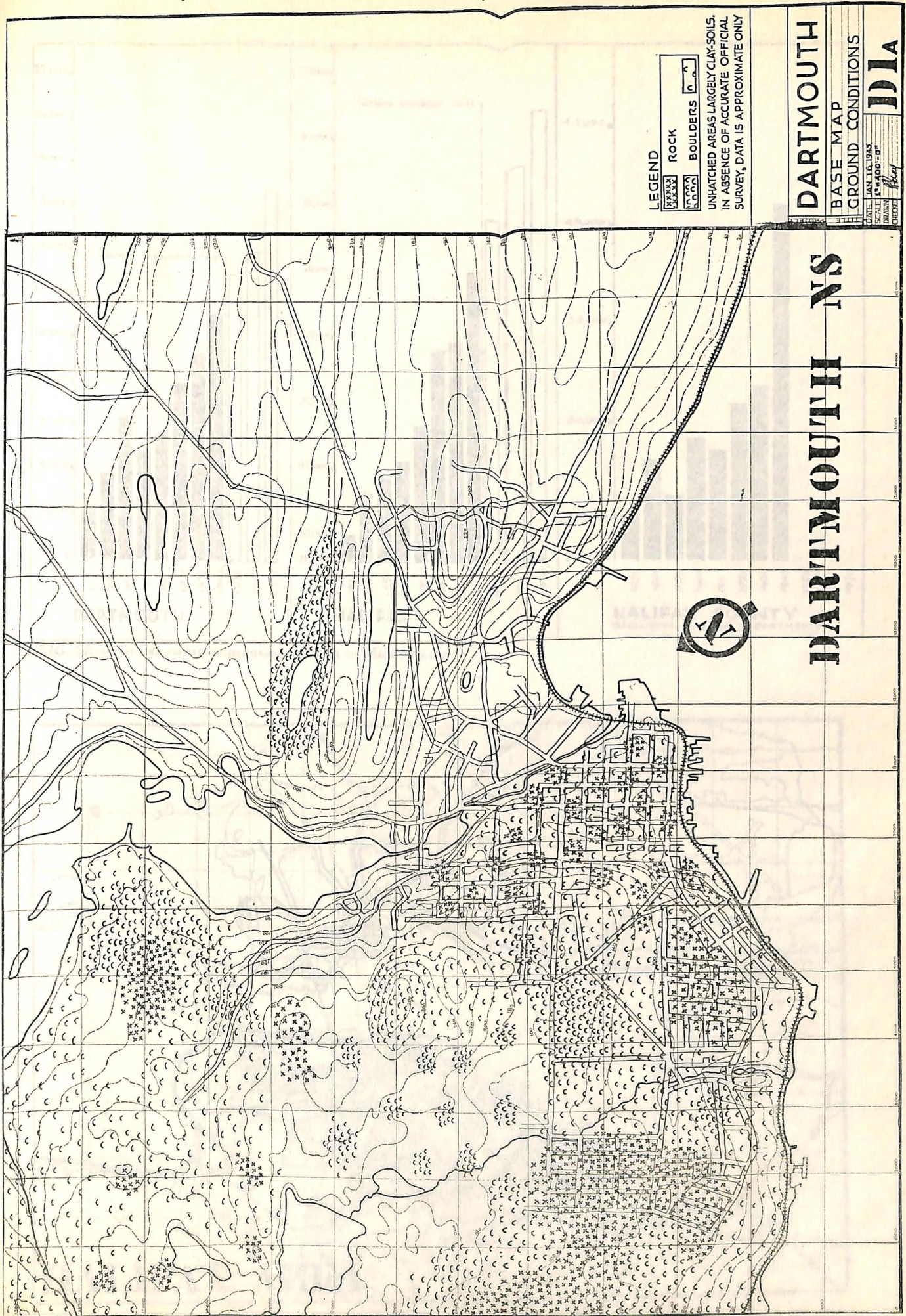


FIG. 2—Map showing ground conditions in Dartmouth area.

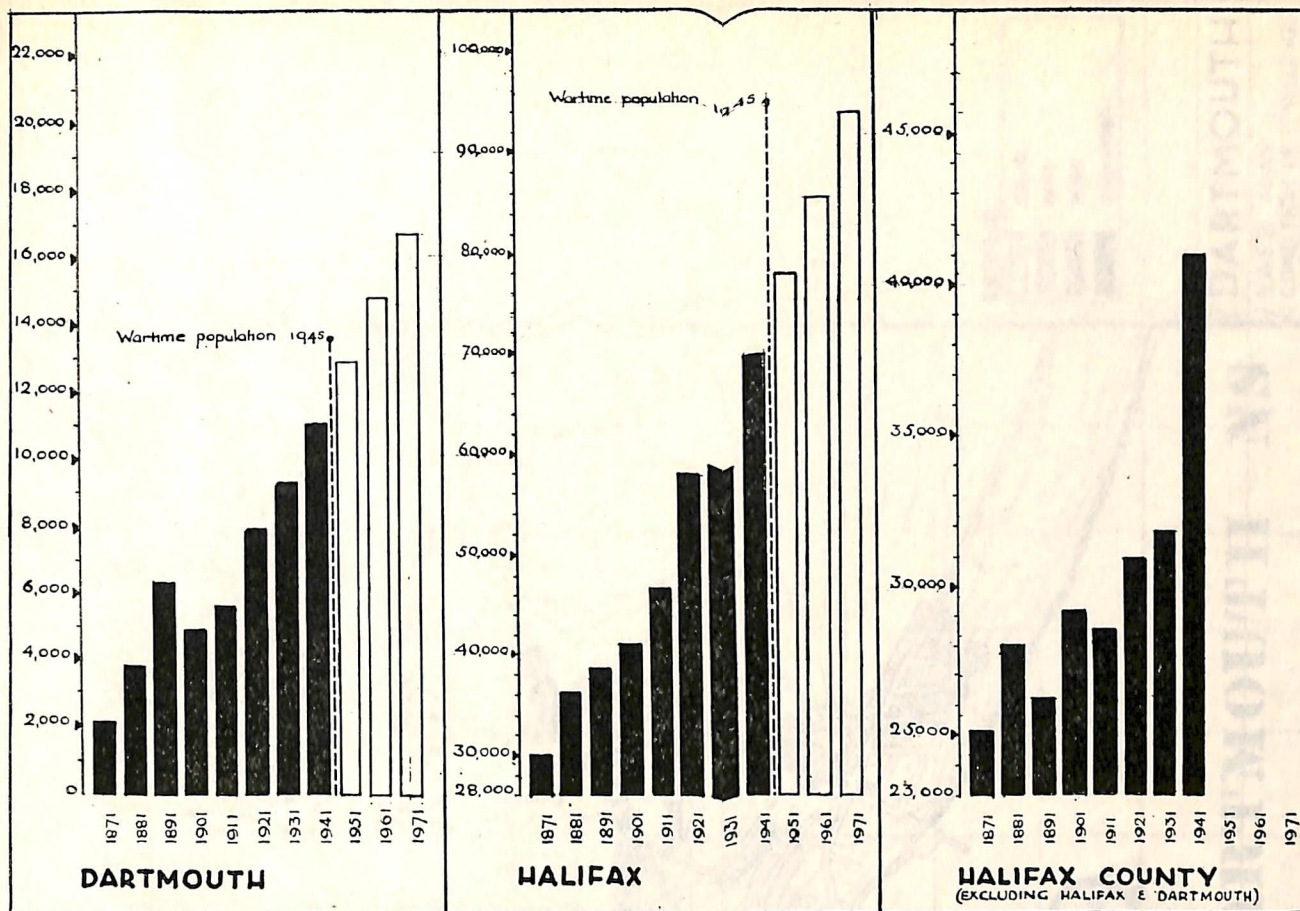


FIG. 3A—Chart showing population growth in Halifax area.

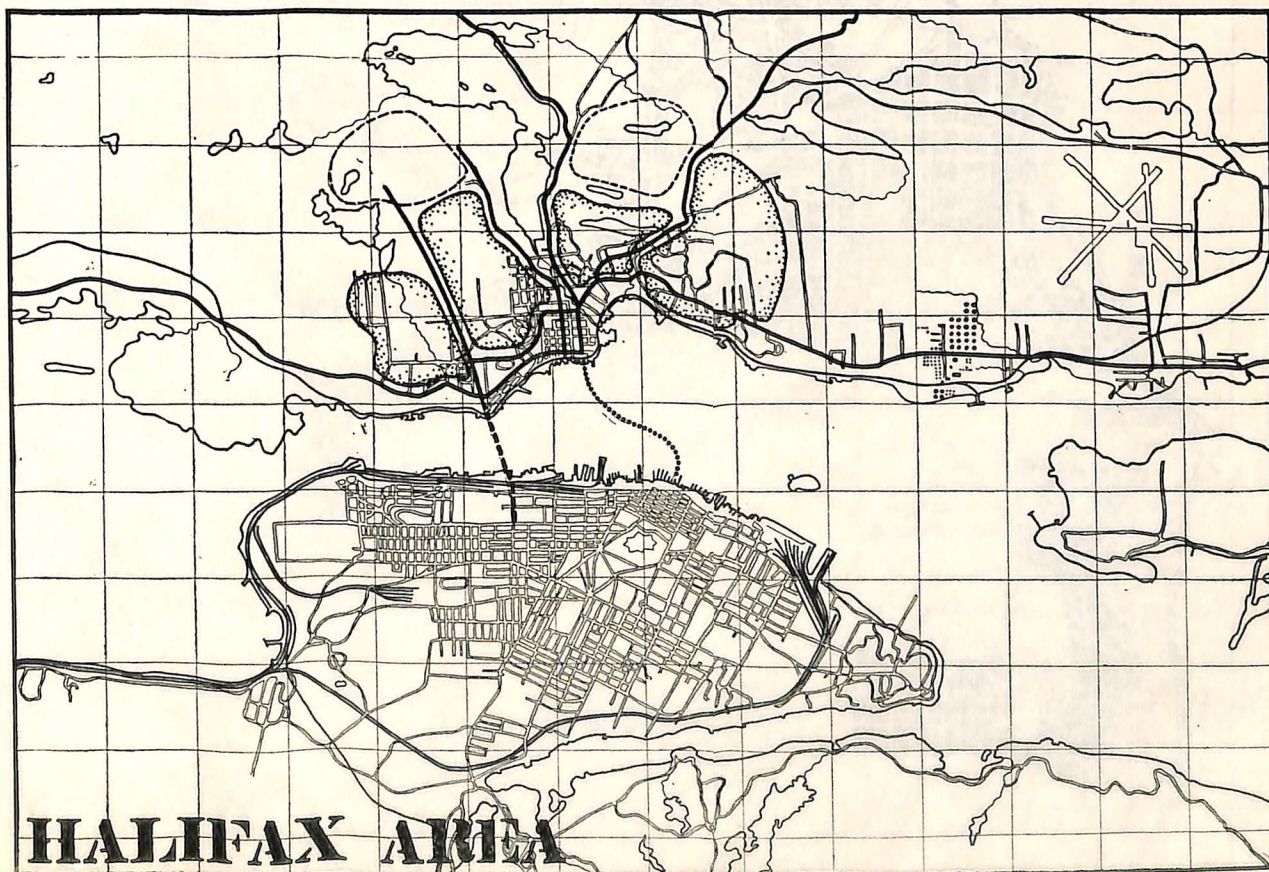


FIG. 3B—Map showing Halifax area and position of proposed harbour bridge

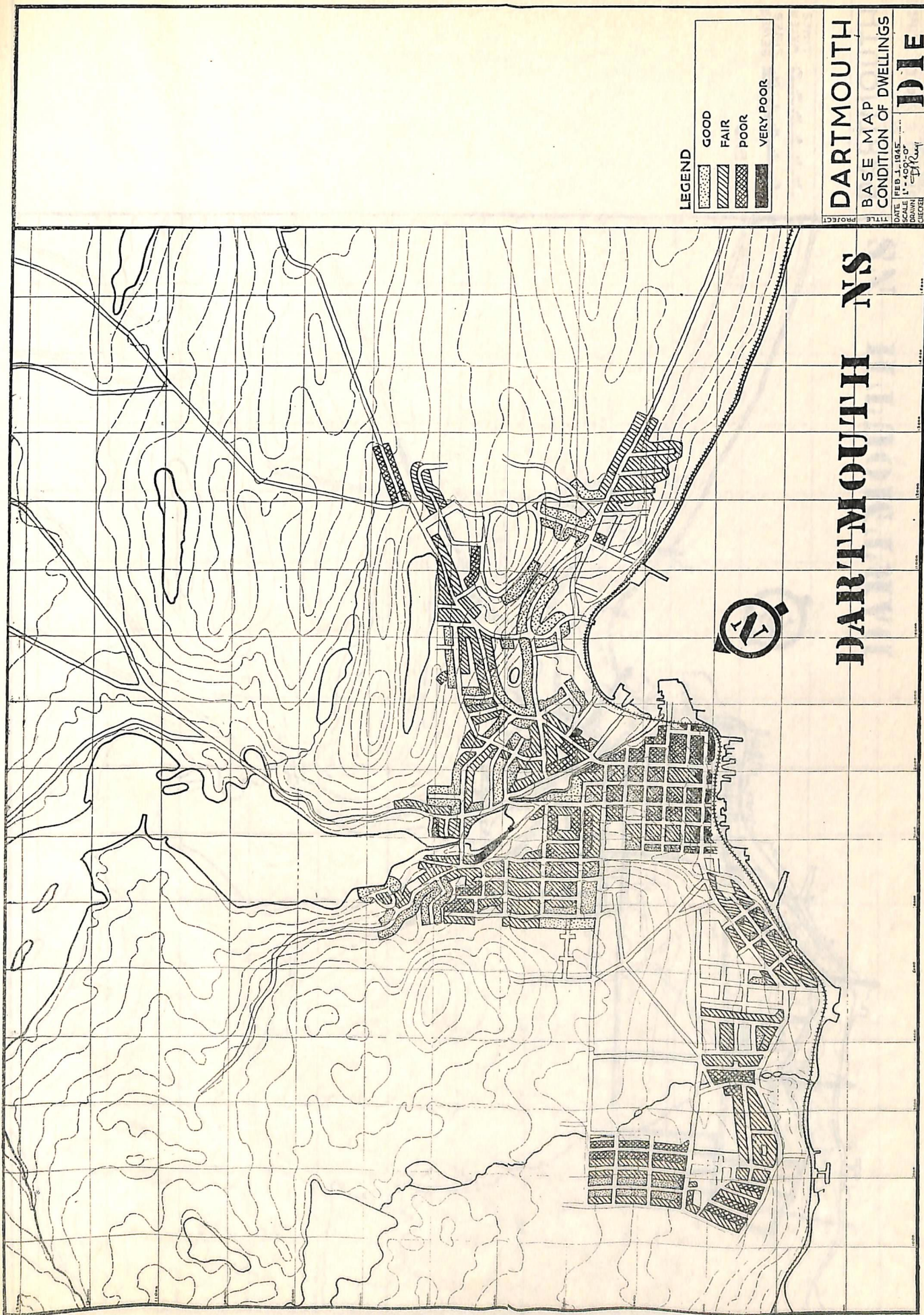


FIG. 4—Map indicating the physical condition of Dartmouth's dwellings

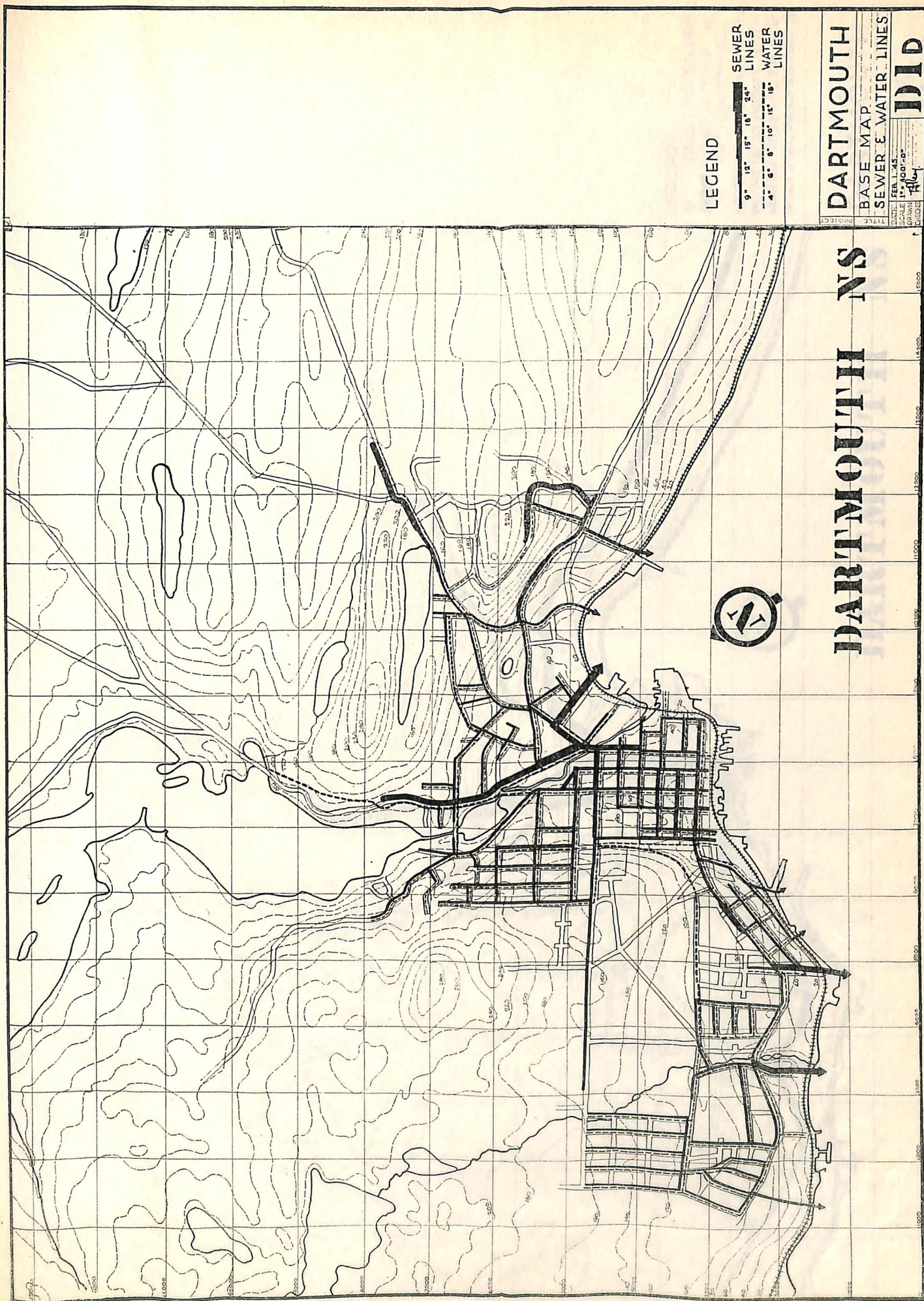


FIG. 5—Map indicating size and location of existing underground utilities.

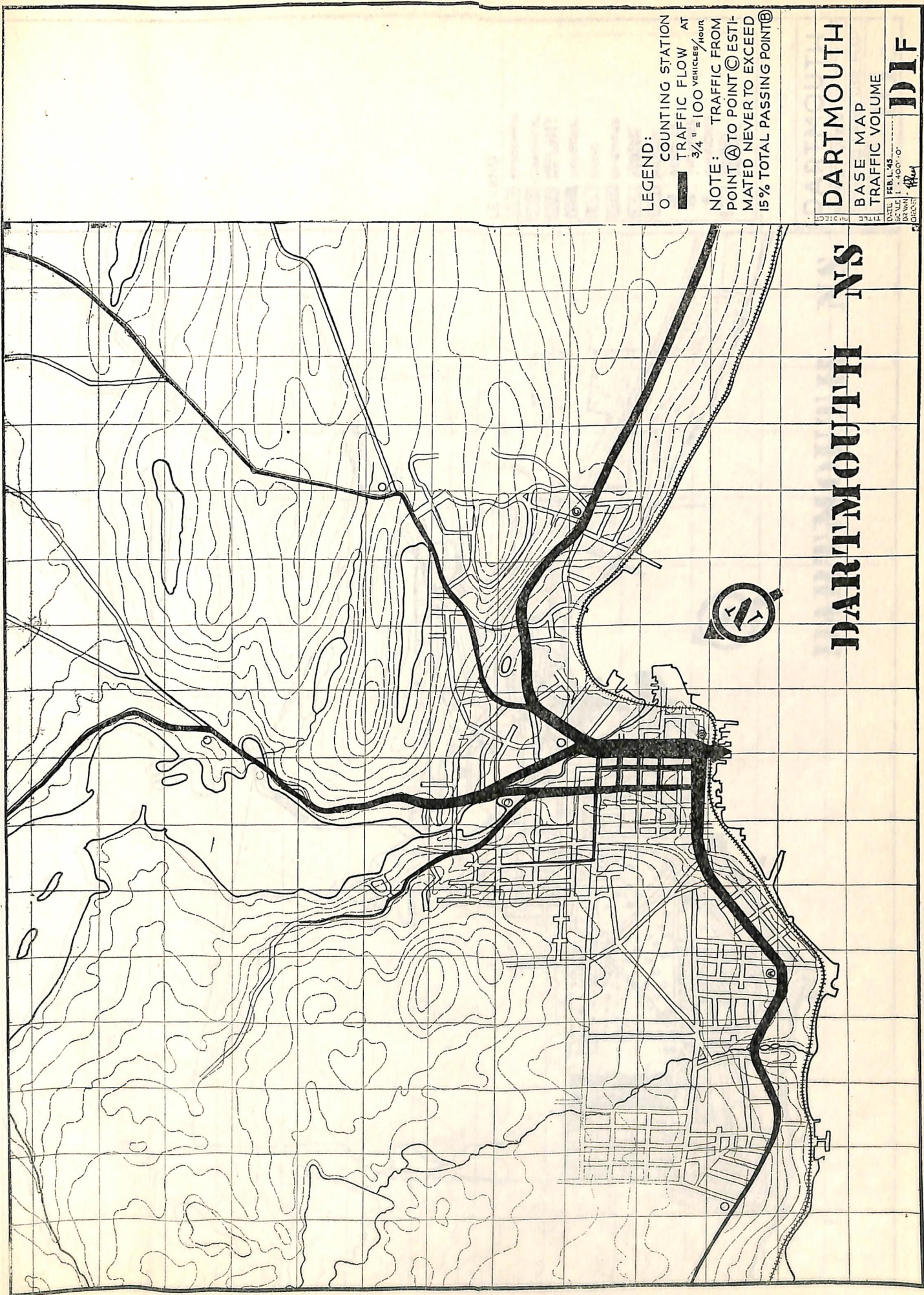


FIG. 6—Existing traffic flow map.

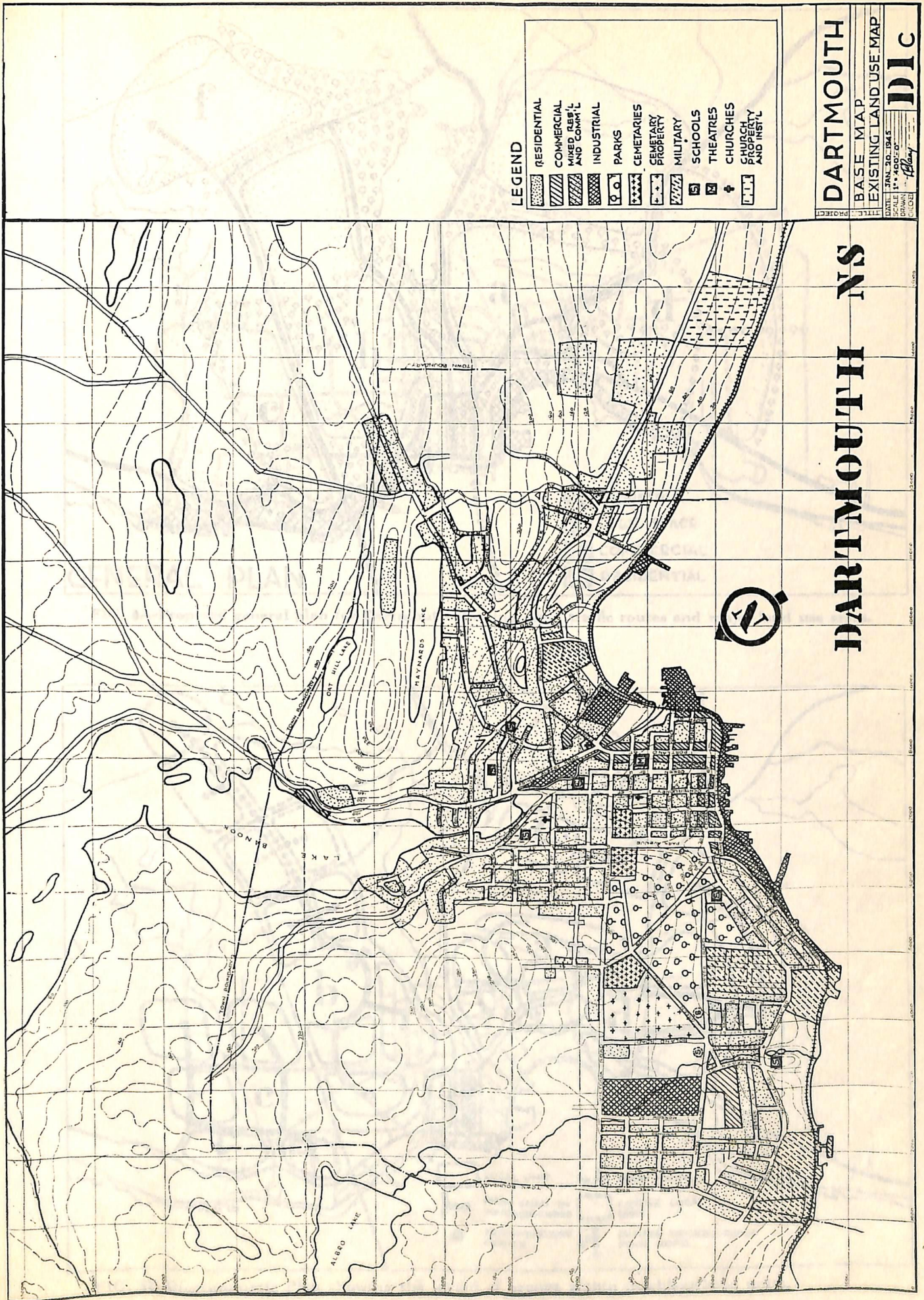


FIG. 7—Map showing pattern of existing land use.

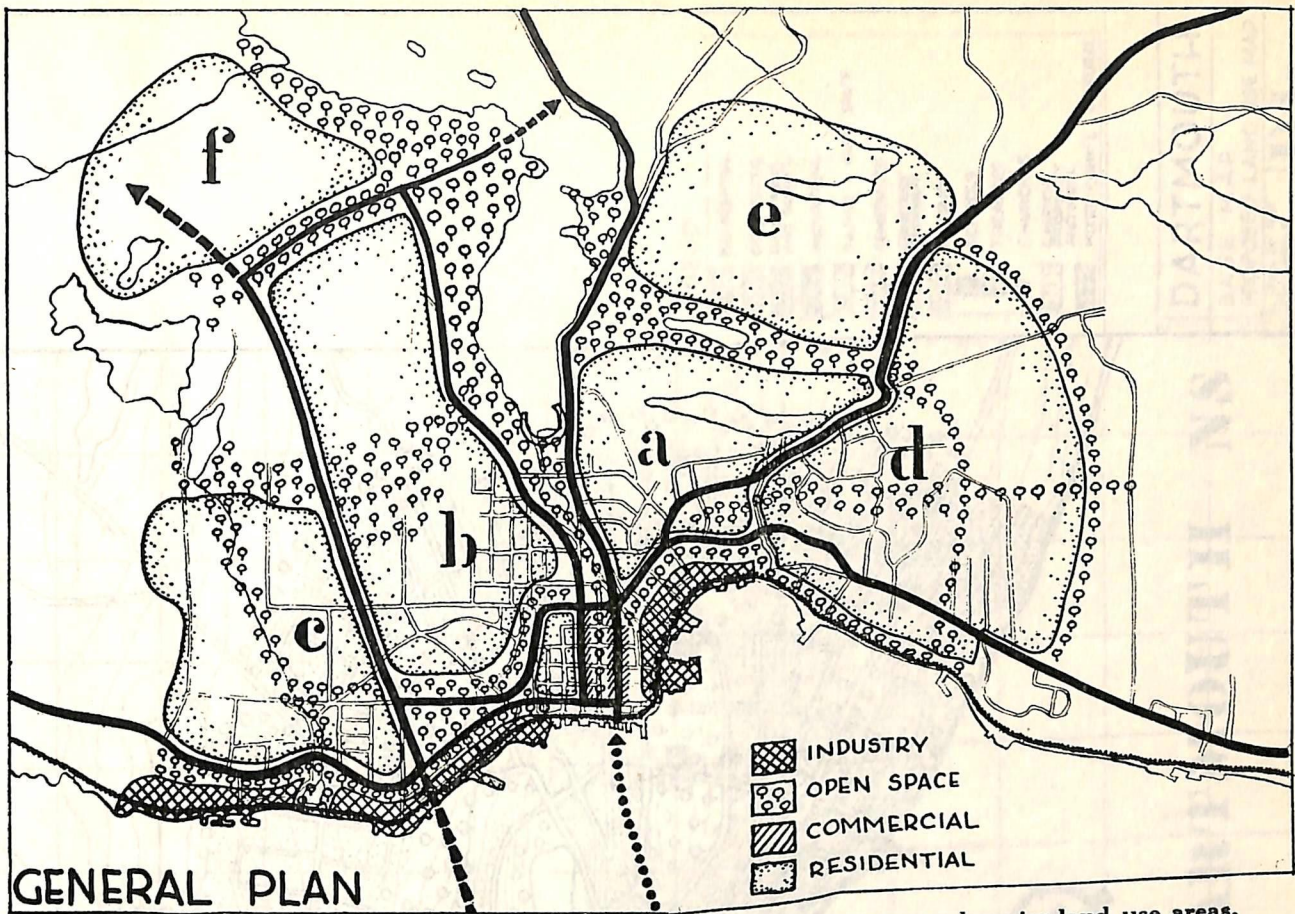


FIG. 8A-Proposed general plan for Dartmouth showing main traffic routes and major land use areas.

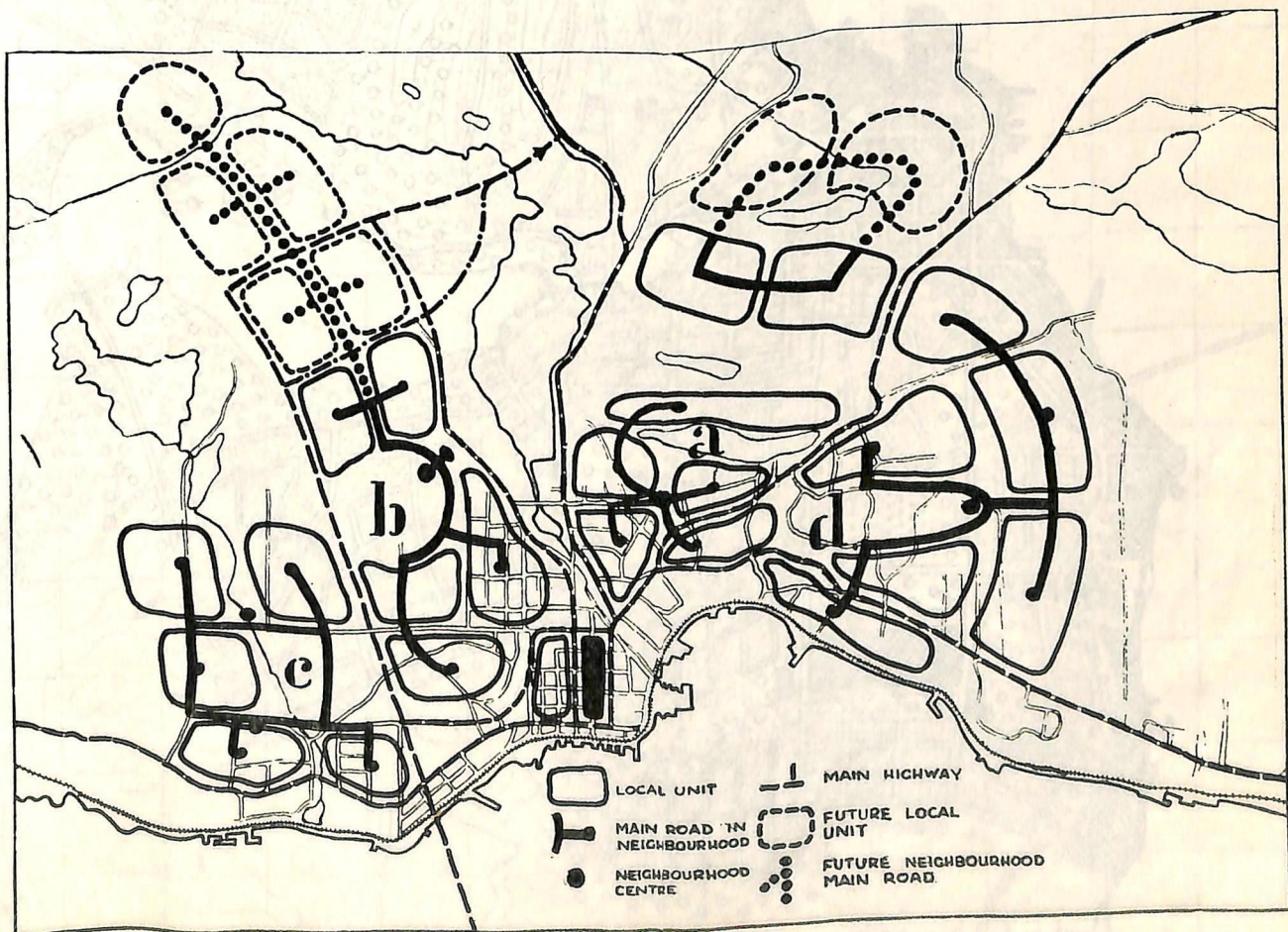


FIG. 8B-Diagrammatic Plan showing the layout of groups within neighbourhood units.

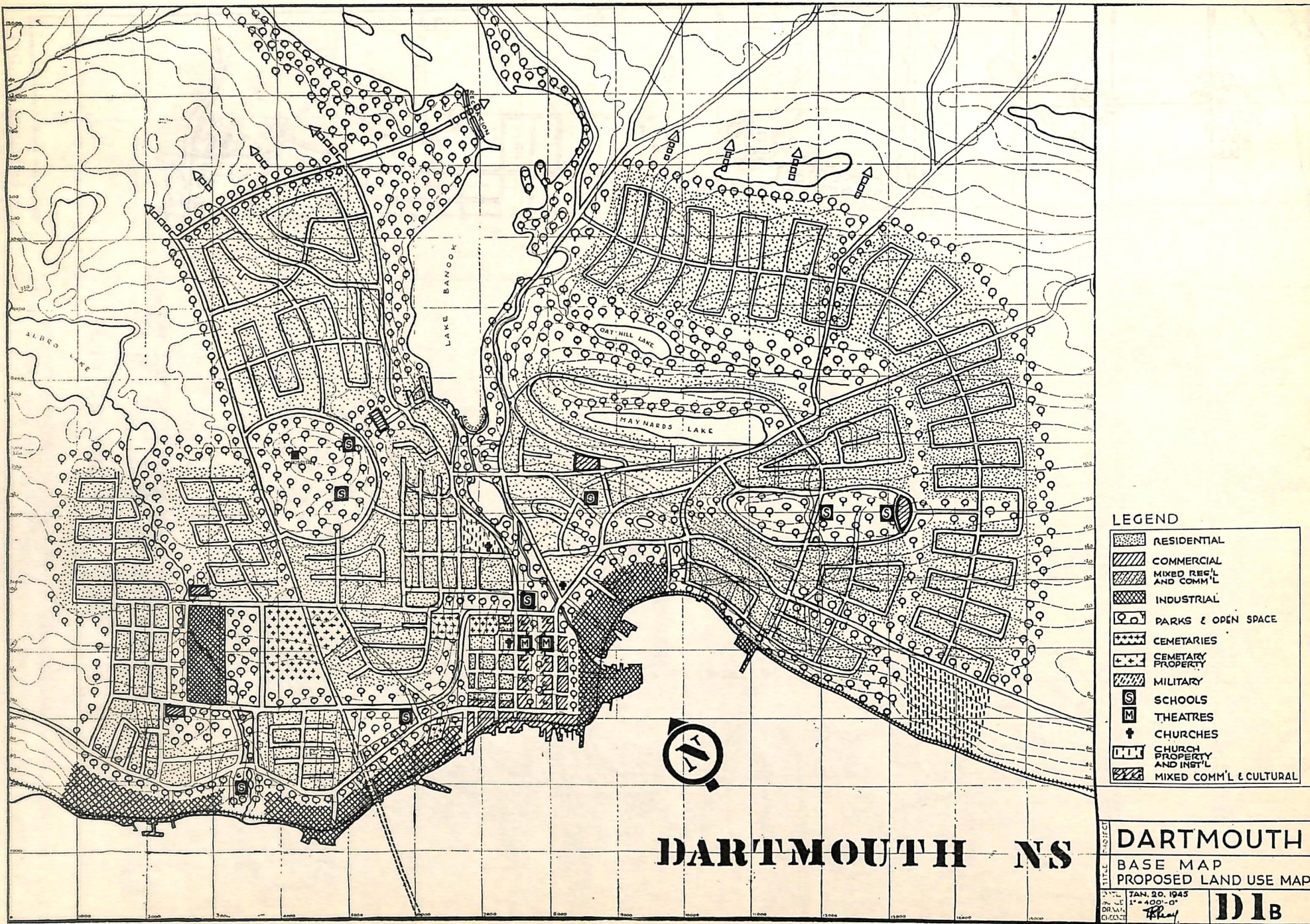


FIG. 9—Map showing the proposed eventual land use pattern for Dartmouth. The street layouts in the residential areas are suggestive only. It is unlikely that all areas shown will be built in the near future, but one side of the valley or the other will grow depending on whether or not the harbour bridge is built.

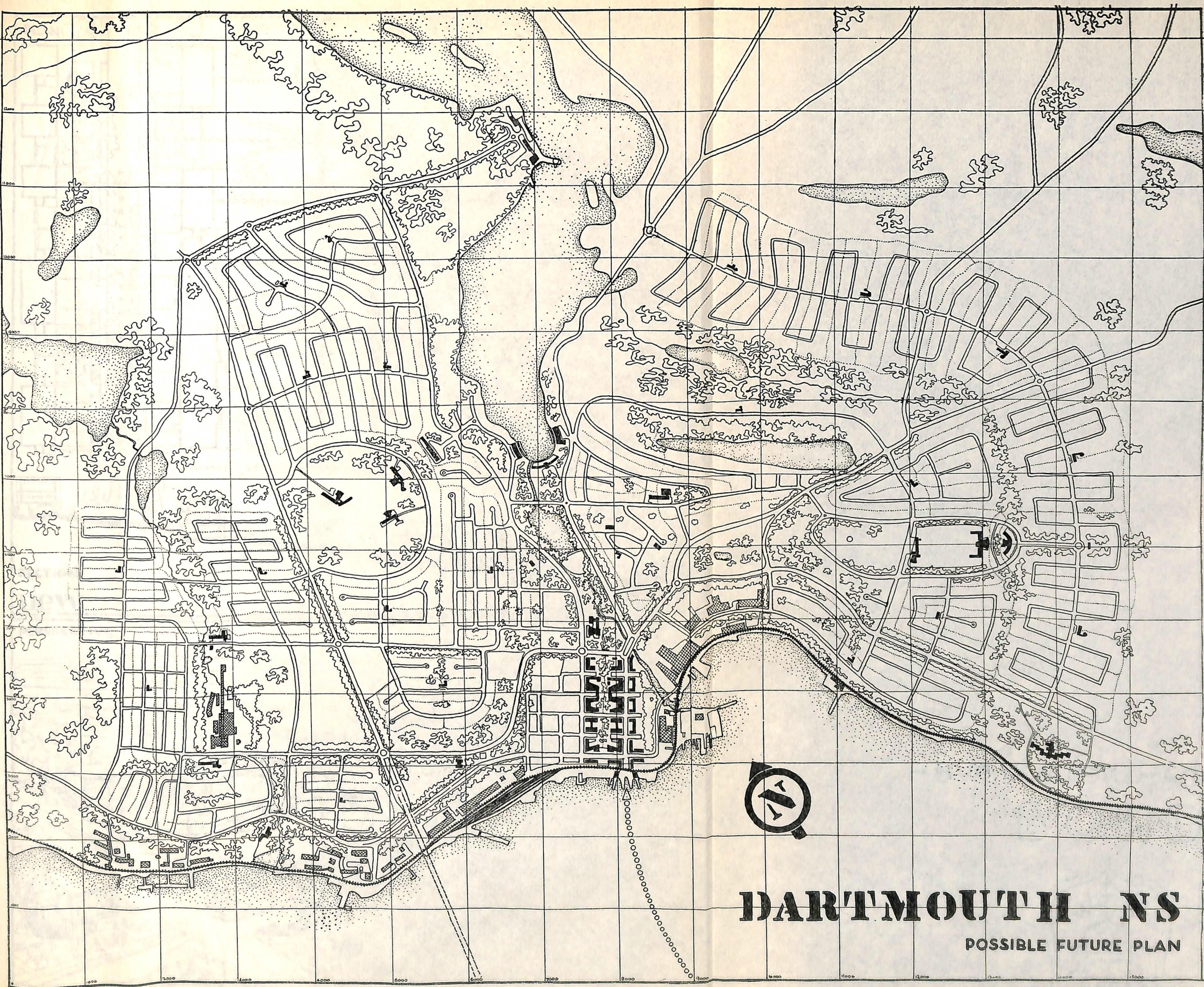


FIG. 10—Suggested possible future layout for Dartmouth showing both sides of the valley fully developed. Public buildings, schools, shopping centres, business buildings etc. are marked black, industrial buildings crosshatched.

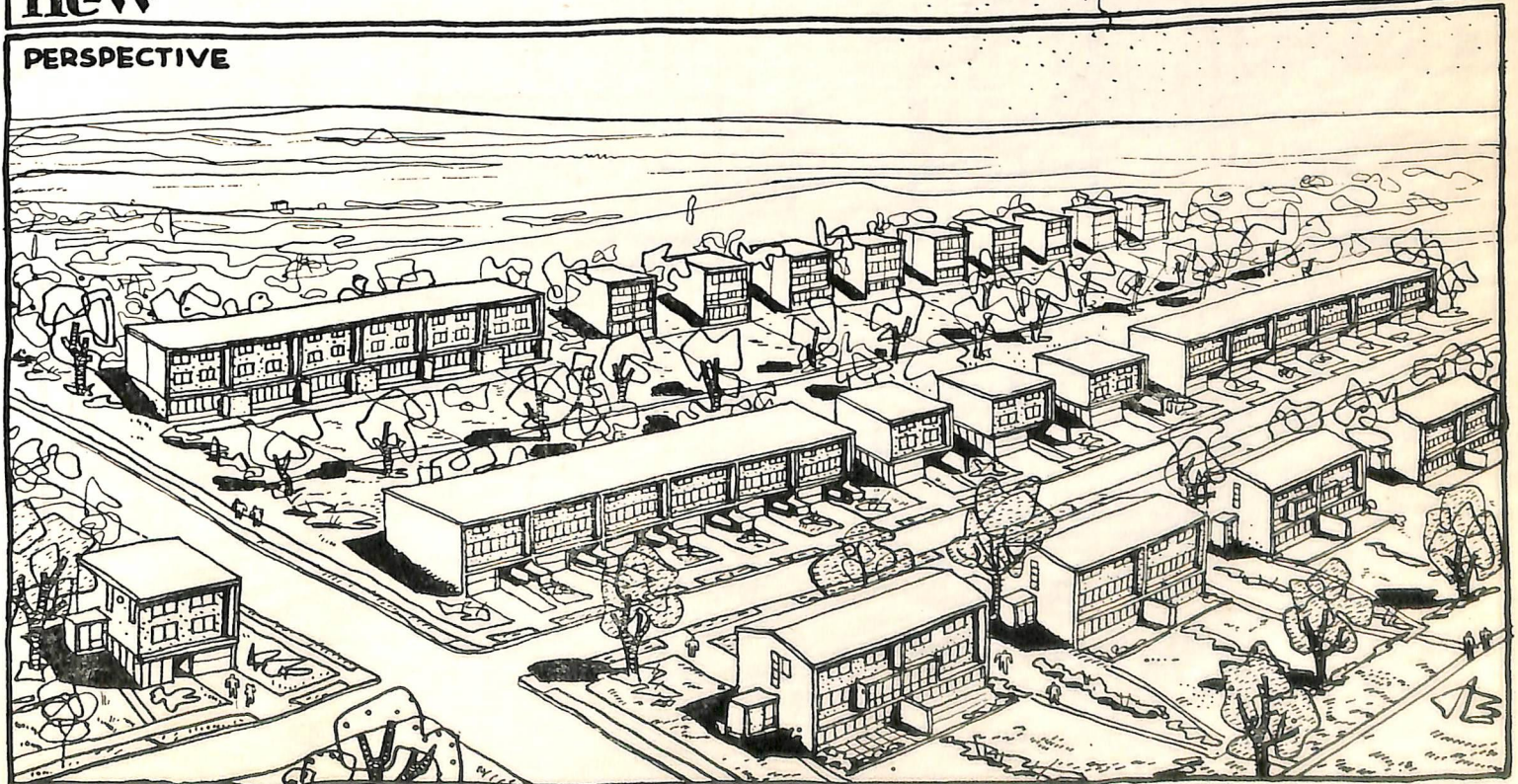
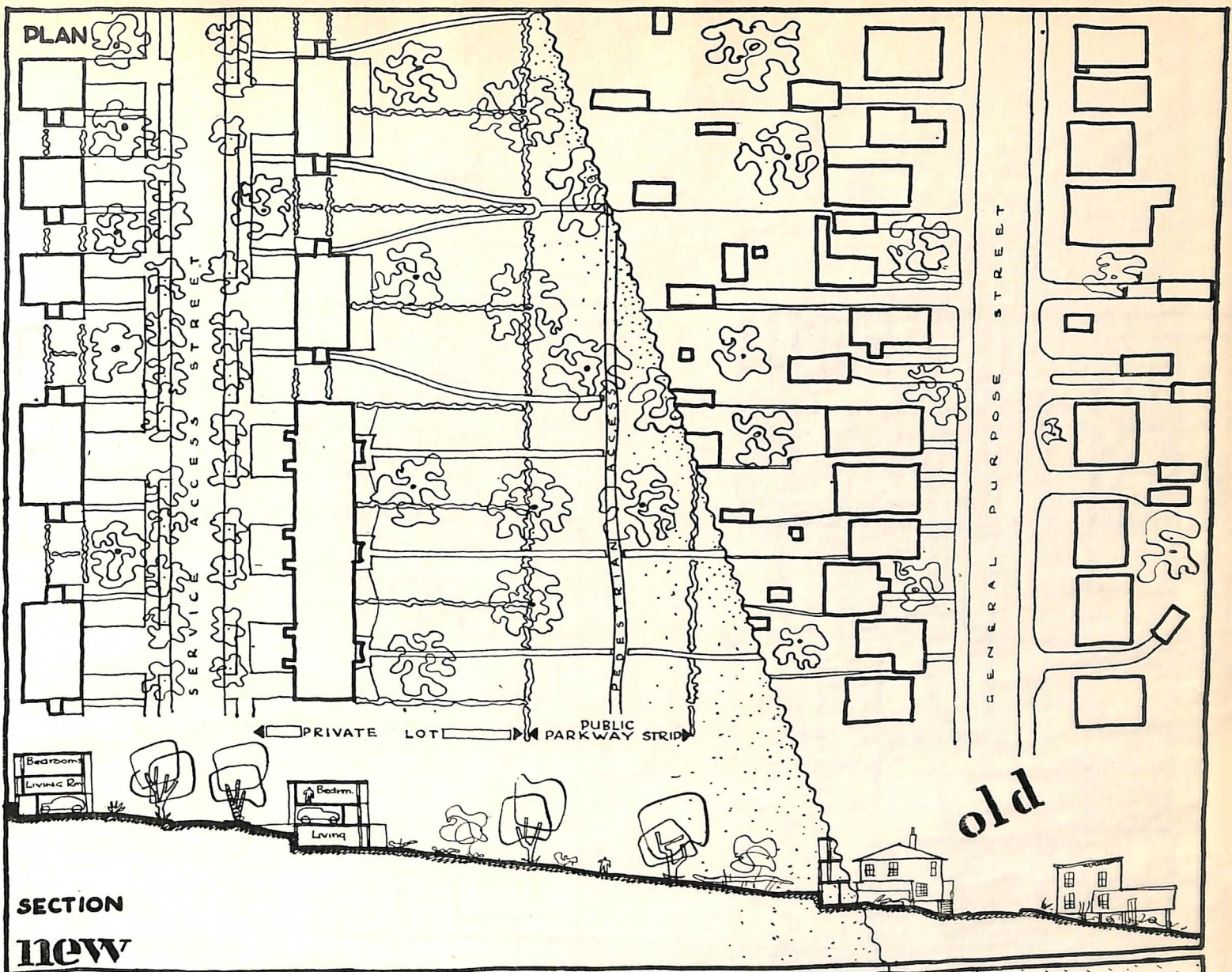


FIG.11—Sketch showing suggested layout for new residential development

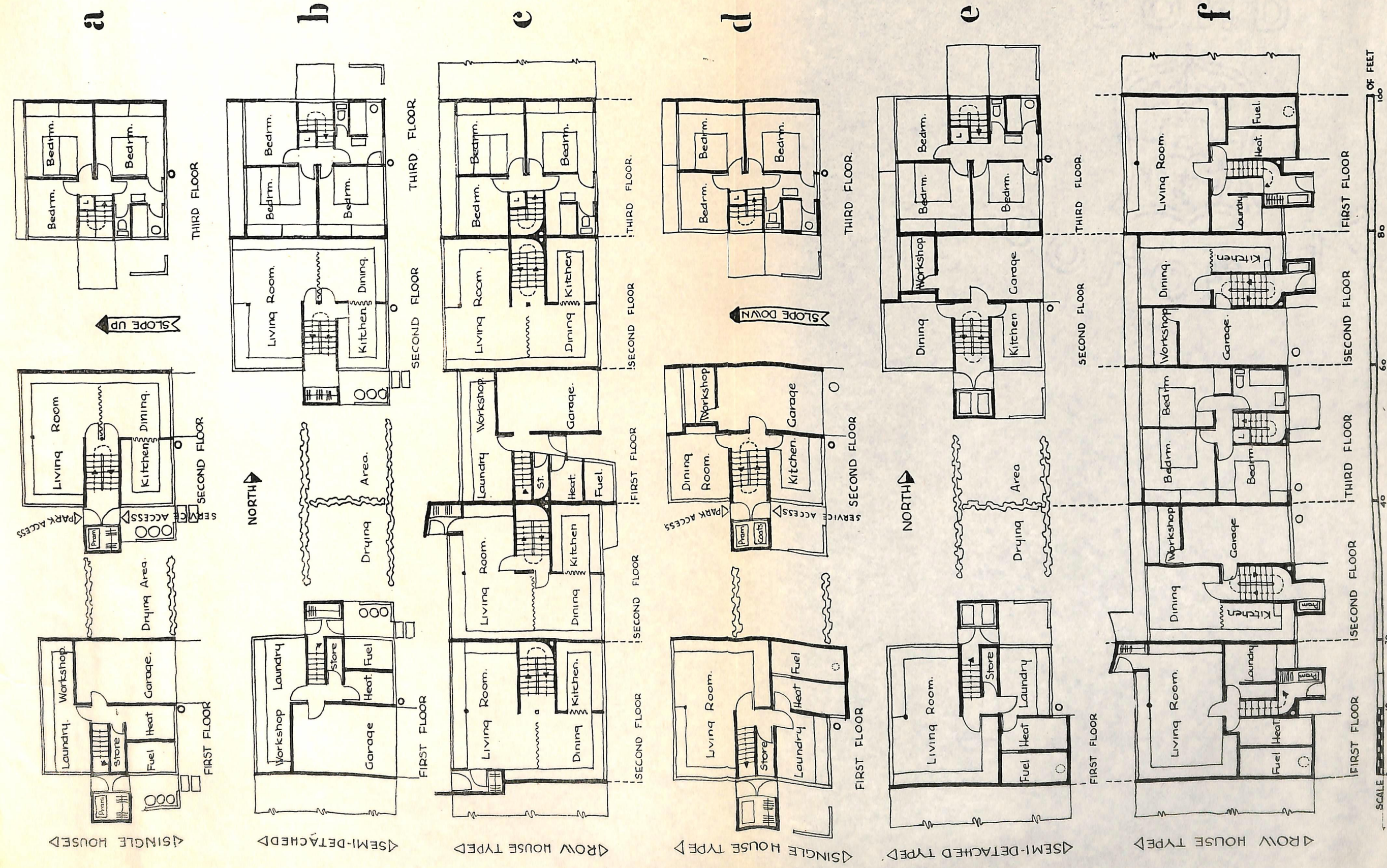


FIG. 12—Showing suggested house plans for sloping sites. A, B, and C, are for the upper side of the street, and D, E, and F are for the lower side of the street.